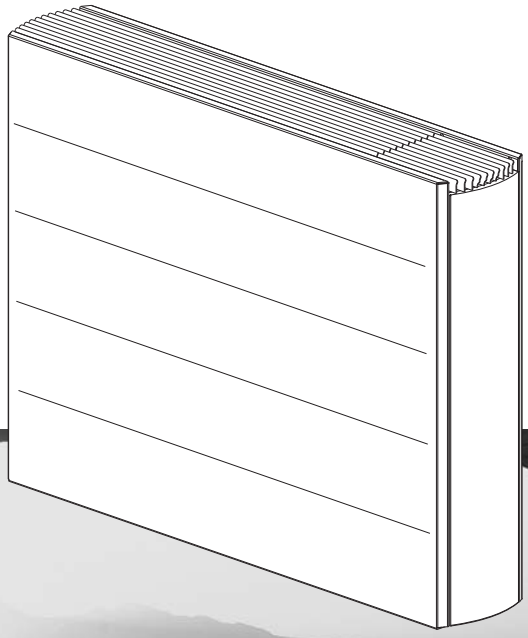
MYSON

iVECTOR Specifiers Guide.



iVECTOR Heater/Cooler
Models: iV080, iV100, iV120, iV140, iV160

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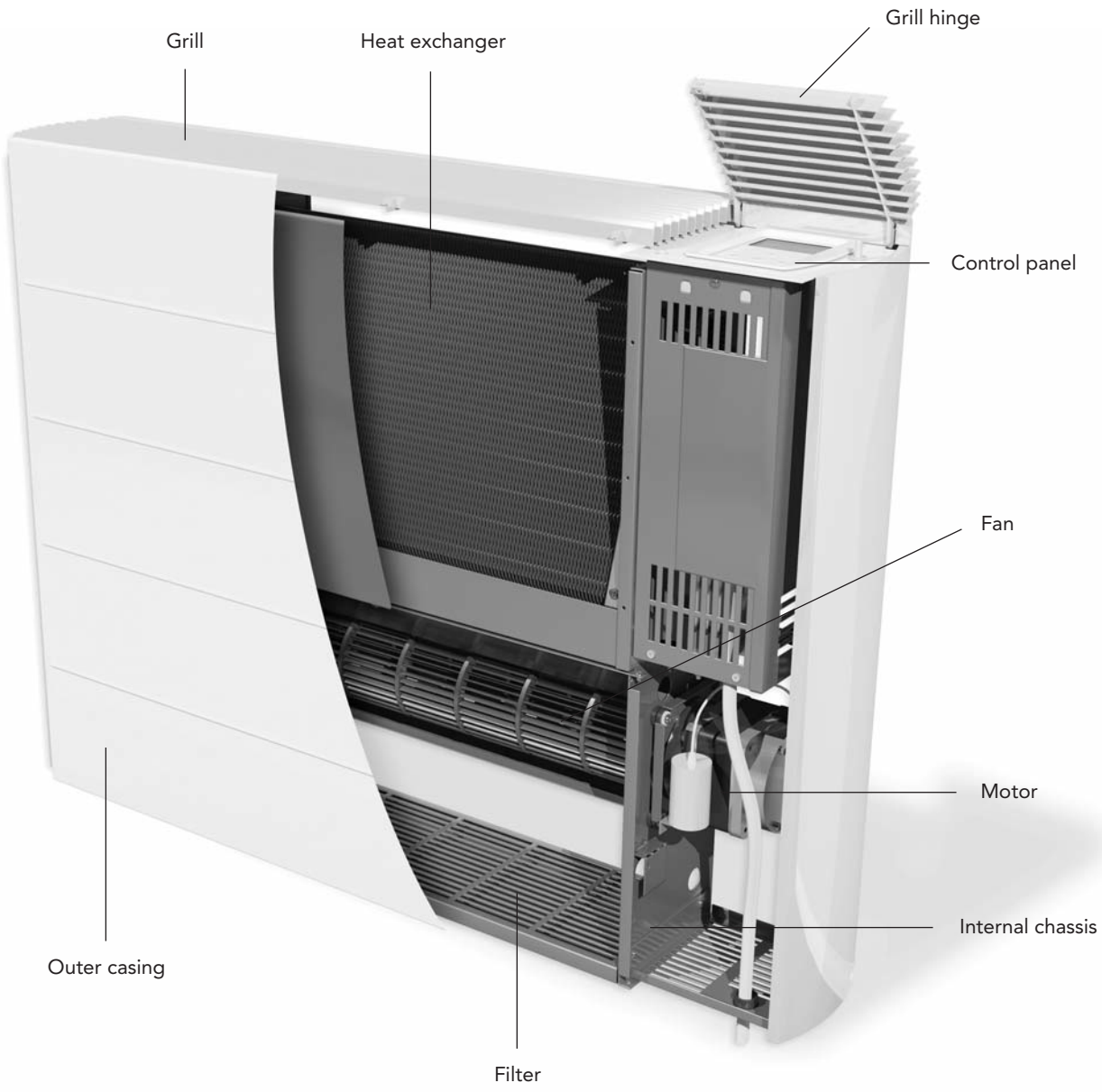
1.0 Introduction

The iVECTOR is MYSON's latest product innovation and an exciting, energy efficient addition to our range of modern heating solutions.

The iVECTOR is the first in a new generation of intelligent fan convectors. It has been designed specifically to combine all the traditional advantages of a fan convector with a range of new product benefits made possible by the inclusion of our latest heating technology, such as a large surface area heat exchanger, low water content, energy efficient fans and intelligent controls.



2.1 Compact in Size

The large surface area of the iVECTOR's heat exchanger means that units are compact in size (all units are a standard height of only 600mm, the same as the most popular size of panel radiator) and occupy significantly less wall space than a panel radiator of equivalent output. By utilising fan convection, the iVECTOR increases its heat output even further and provides an even distribution of warm air throughout a room. This means that rooms feel more comfortable, even at lower temperatures.

2.2 Renewable Technology

Due to its heat exchanger and fan, the iVECTOR will produce significantly higher heat output than a panel radiator of the same size. This means that iVECTORs are ideal for use with low water temperature systems. For example, when operating with a low flow temperature of 45°C the iVECTOR will produce around twice as much heat output as a similar double panel radiator.

2.3 Rapid Response

The iVECTOR has a low water content, between 5 and 10% of the amount used in a traditional radiator with equivalent output. This lower water content means that an iVECTOR produces an instant heat response where needed and cools quicker when heat is no longer required. Heat is accurately controlled as a result, leading to improved indoor comfort.

2.4 Low Surface Temperature (LST)

When operating with low flow temperatures of 35 - 55°C no outer part of an iVECTOR will exceed a temperature of 43°C. As a result, when used with heat pumps, iVECTORs provide a high output and energy efficient alternative to standard LST radiators for sensitive environments such as nurseries and care homes.

(Please note that this does not apply when iVECTORs are used with high water temperature systems, please contact MYSON Technical Services for full information).

3.1 Unit Sizes

All iVECTORs are the same height and depth and there is a choice of 5 different lengths as detailed in the table (right). The performance data for each model is supplied in the following sections of this guide.

Model	Nominal Height (mm)	Depth (mm)	Length (mm)
iV60x080	600	153	800
iV60x100	600	153	1000
iV60x120	600	153	1200
iV60x140	600	153	1400
iV60x160	600	153	1600

3.2 Outputs

The heat output of the iVECTOR is affected by the flow rate of water through its heat exchanger, even when the mean water temperature is constant. Each iVECTOR model requires the specified flow rate to ensure the temperature drop will be reasonable, as shown in the outputs table. For quietest operation MYSON recommends sizing the iVECTOR based on normal fan speed.

Model	Fan Speed	Mean water - air temp difference (watts)							
		Flow (l/h)	ΔT20	ΔT25	ΔT30	ΔT35	ΔT40	ΔT45	ΔT50
iV60x080	Normal	341	738	940	1146	1355	1567	1781	1997
	Medium	341	989	1260	1537	1817	2101	2388	2678
	Boost	341	1360	1733	2113	2499	2889	3284	3682
iV60x100	Normal	450	1012	1289	1572	1859	2149	2443	2739
	Medium	450	1352	1723	2101	2484	2872	3265	3661
	Boost	450	1892	2412	2941	3477	4020	4569	5124
iV60x120	Normal	600	1214	1548	1887	2231	2580	2932	3288
	Medium	600	1643	2094	2553	3018	3490	3967	4448
	Boost	600	2409	3070	3743	4425	5117	5815	6521
iV60x140	Normal	700	1428	1820	2219	2624	3034	3449	3867
	Medium	700	1945	2478	3022	3573	4131	4695	5265
	Boost	700	2916	3716	4531	5357	6194	7040	7894
iV60x160	Normal	800	1647	2099	2560	3027	3499	3977	4460
	Medium	800	2246	2863	3491	4127	4772	5424	6082
	Boost	800	3422	4362	5318	6288	7270	8263	9266

Model	Fan Speed	Cooling (watts)	
		Condition 7-12-27	
		Total	Sensible
iV60x080	Normal	707	527
	Medium	1126	829
	Boost	1648	1227
iV60x100	Normal	1011	753
	Medium	1600	1178
	Boost	2304	1716
iV60x120	Normal	1250	931
	Medium	1960	1442
	Boost	2918	2173
iV60x140	Normal	1490	1110
	Medium	2320	1707
	Boost	3533	2631
iV60x160	Normal	1729	1288
	Medium	2679	1972
	Boost	4147	3088

Relative Humidity: Sensible cooling at 50%.

3.3 Flow Rates/Pressure Losses

Flow	Pressure Drop (mm wg)				
(l/h)	iV60x080	iV60x100	iV60x120	iV60x140	iV60x160
100	69	104	145	163	191
150	145	213	291	325	380
220	293	421	565	625	728
330	619	866	1140	1250	1447
500	1328	1812	2338	2542	2926
750	2800	3728	4713	5082	5817

Flow	Pressure Drop (Pa)				
(l/h)	iV60x080	iV60x100	iV60x120	iV60x140	iV60x160
100	675	1015	1418	1594	1877
150	1423	2088	2859	3187	3731
220	2878	4127	5543	6131	7140
330	6067	8489	11176	12257	14194
500	13026	17775	22926	24929	28700
750	27459	36559	46221	49837	57051

3.4 Noise Levels

The iVECTOR has three different fan speeds. The lower the fan speed, the lower the noise level. At the lowest fan speed, the unit operates almost silently. It is our quietest fan convector ever. The following table provides a comprehensive overview of noise levels as tested in accordance with ISO 3741. For quietest operation MYSON recommends sizing the iVECTOR based on normal fan speed.

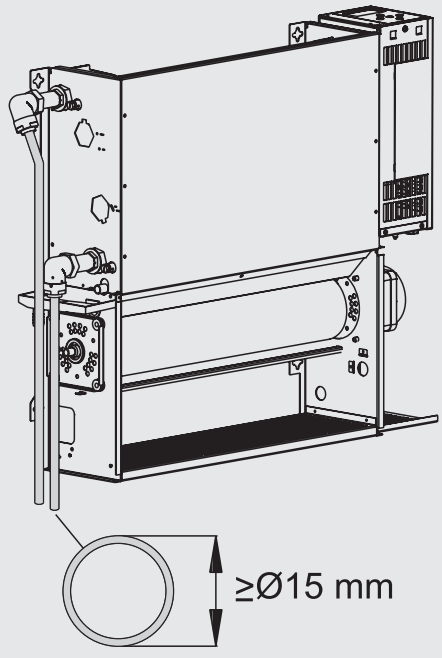
Model	Sound Power LwA (dB)			Sound Pressure (dBA) - at 2.5m		
	Normal	Medium	Boost	Normal	Medium	Boost
iV60x080	31.9	44.8	55	24.8	37.7	47.9
iV60x100	34.1	42.9	55	27	35.8	47.9
iV60x120	31.1	44.7	58.8	24	40.5	51.7
iV60x140	32	42.6	61.9	24.9	35.5	54.8
iV60x160	34.1	42.1	63.4	27	35	56.3

3.5 Hydronic Connections

The iVECTOR is suitable for use on closed circulation, two pipe*, pump assisted central heating systems or heating and cooling systems. Not suitable for one pipe or microbore systems.

Note: A pressure independent balancing and control valve is available for this product as an accessory. This valve can simplify system design by eliminating the possible need for larger balancing valves elsewhere in the system, and will maintain the flow in the unit to the required levels.

*Pipes should be sized using flow rate and pressure losses.



No microbore pipework

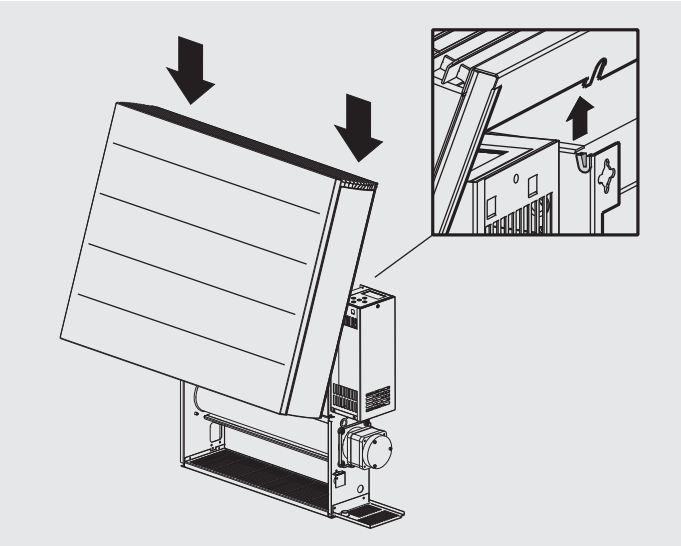
3.6 Weight, Water Content and Motor Power

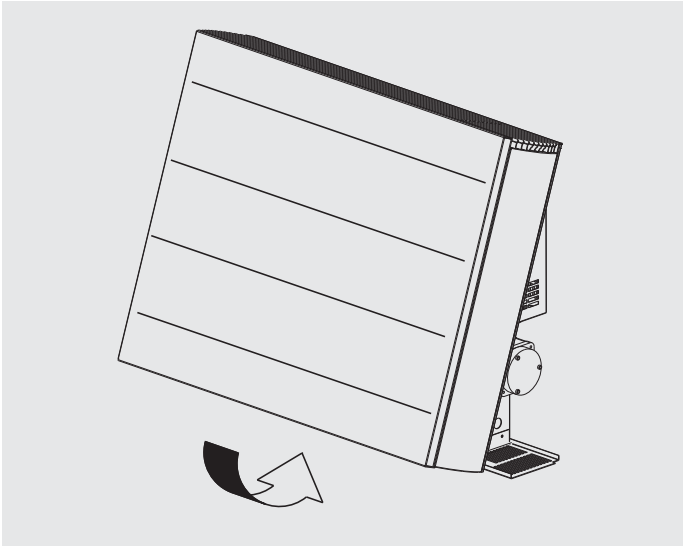
Model	Motor Power (w)	Water Content (l)	Unpacked Weight (kg)
iV60x080	32	0.66	22.8
iV60x100	35	0.92	27.7
iV60x120	45	1.19	32.5
iV60x140	53	1.45	37.5
iV60x160	65	1.72	42.6

4.1 Ease of Installation

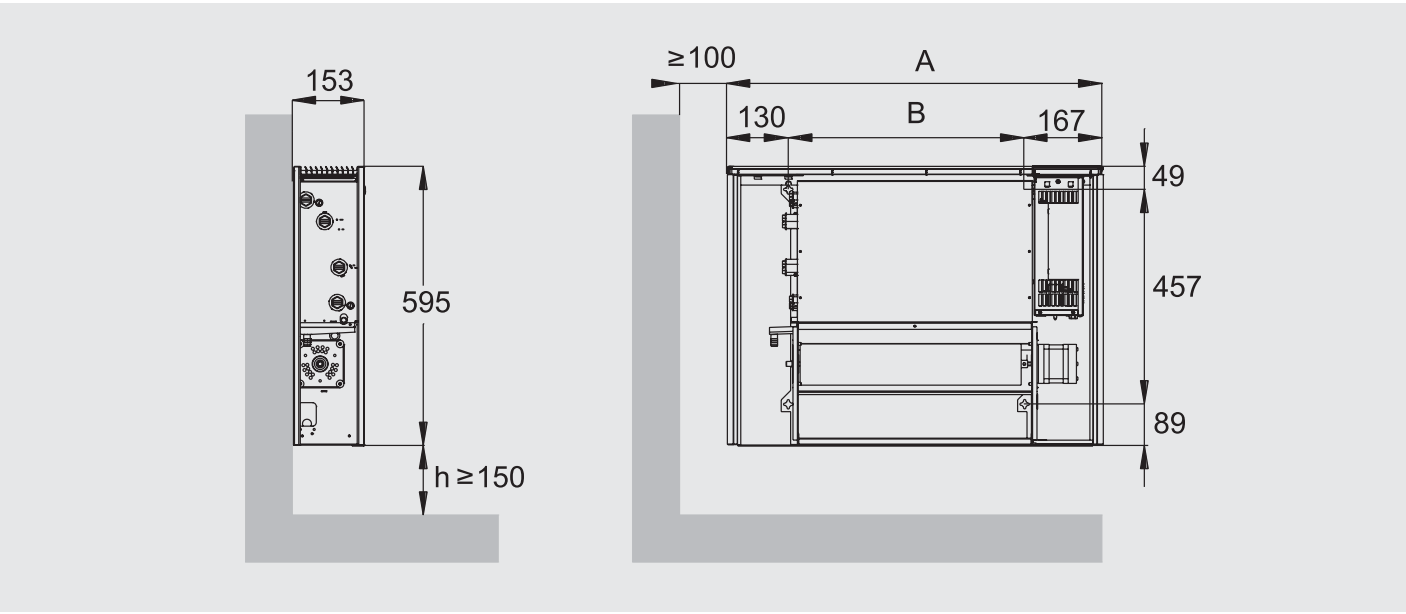
The iVECTOR has been designed specifically to make installation as easy as possible. Unlike panel radiators it does not have any brackets to fit and unlike some fan convectors it is not supplied in kit form – there is only a one-piece casing to attach!

The iVECTOR can be securely fitted on most flat walls with a minimum side clearance of 100mm and a minimum floor clearance of 150mm. Units should not be installed in locations with high humidity levels, such as bathrooms.





4.2 Mounting Dimensions



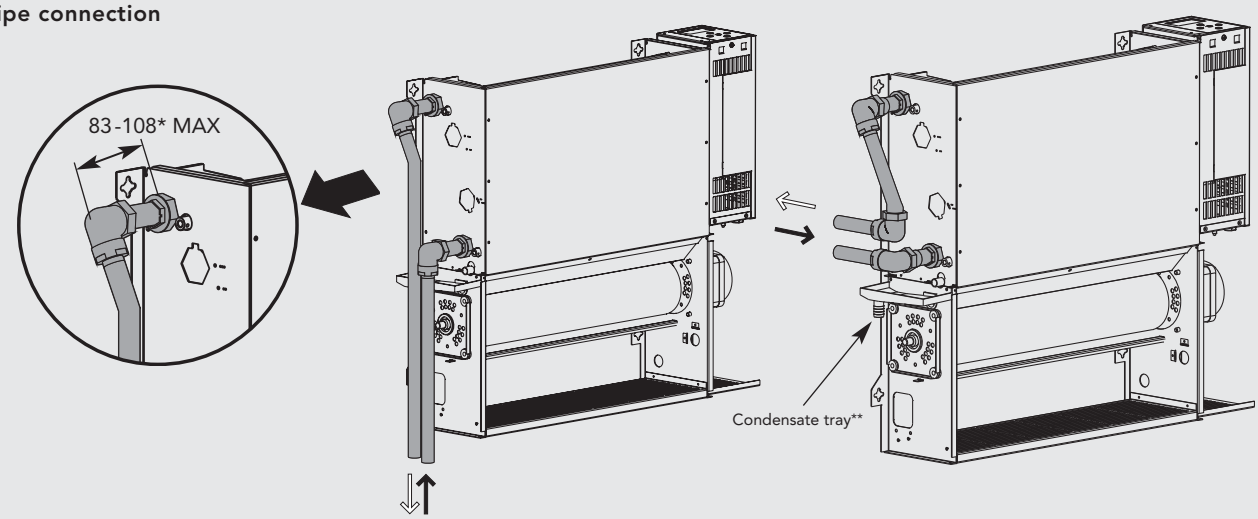
	Dimensions (mm)	
Model	A	B
iV080	800	503
iV100	1000	703
iV120	1200	903
iV140	1400	1103
iV160	1600	1303

4.3 Water Connection - Pipe Routing Options

The iVECTOR has two pipes to connect – flow and return. This pipework can be routed in one of two ways, either from the floor or through the wall at the back of the unit (see diagram below).

Please note that the flow pipe must be connected to the bottom connection of the heat exchanger and the return pipe to the top connection.

2-pipe connection



*Dimension from chassis side to pipe centre.
**For cooling, a condensate drain must be fitted to the condensate tray.

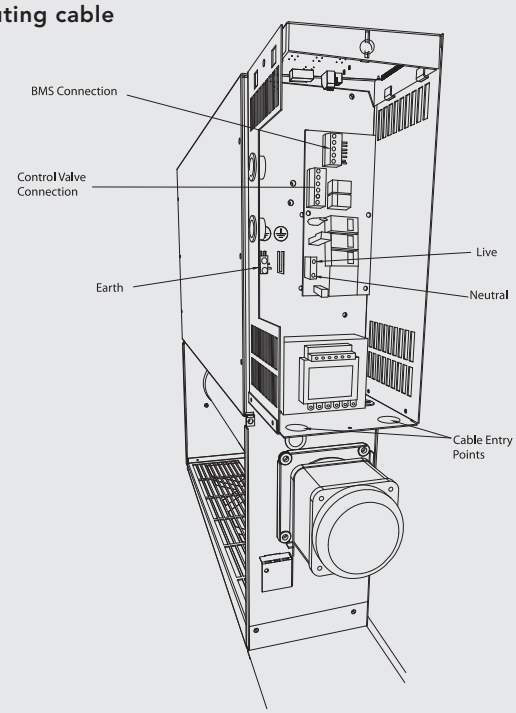
4.4 Electrical Connection

The electrical installation of an iVECTOR should be carried out by a qualified electrician in accordance with current regulations.

A fused electrical spur with a maximum 3A fuse and a switch having 3mm separation on all poles must be provided in an easily accessible position adjacent to the unit. The electrical cable should be fed through the underside of the unit, into the control box on the right hand side using the cable gland provided. The supply cord must be 0.75mm² only. The live and neutral wires are connected to the power board terminal connections and the earth wire to the chassis earth terminal.

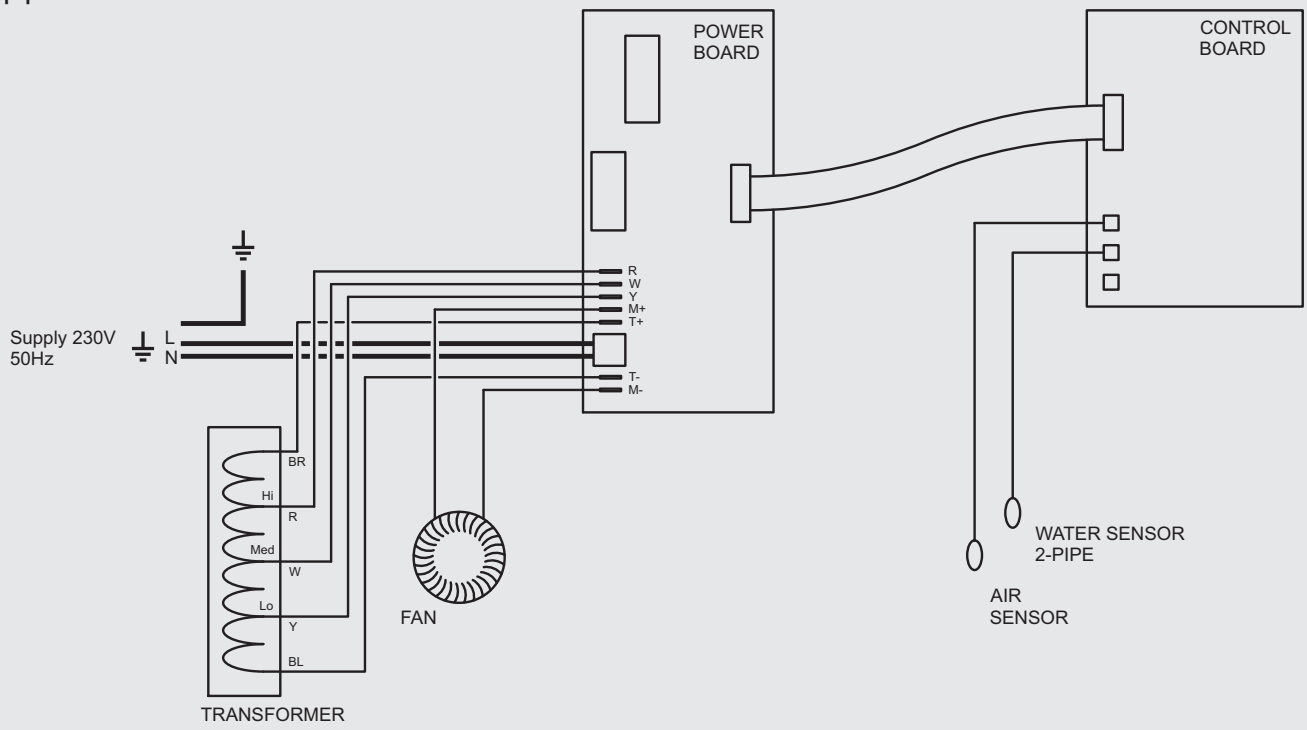
There is a built-in connection for use with Building Management Systems in all iVECTORs, however, this will require additional wiring to the unit.

Routing cable

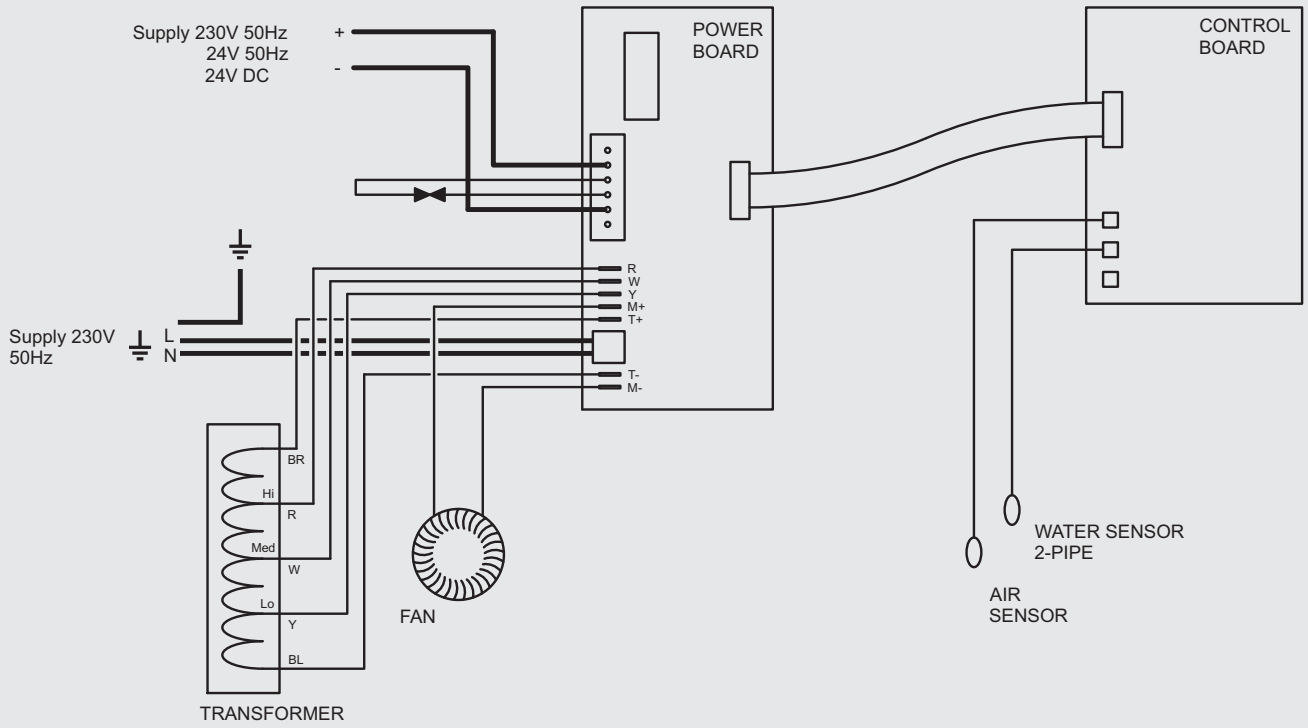


4.4 Electrical Connection (continued...)

2-pipe 0 valve



2-pipe 1 valve



5.1 All Round Suitability

The compact size, high heat output and efficiency of the iVECTOR makes it a great all round performer which is suitable for use with all types of heating systems, in domestic and commercial situations, with new build and refurbishment work and alongside other types of heat emitter in the same building.

5.2 Traditional Heating System

The lower water content inside each iVECTOR means that it produces an instant heat response where needed and cools quicker when heat is no longer required. iVECTORs, therefore, use minimal energy and have lower lifecycle costs than other emitters, making them a realistic alternative to traditional radiators with high water temperature systems.

5.3 Renewable Heating System

The iVECTOR has been designed specifically to operate efficiently with low flow temperatures. It contains the latest energy efficient heating technology, with features such as large surface area heat exchanger, low water content and intelligent controls.

With renewable installations such as heat pumps, iVECTORS are a viable alternative to underfloor heating or radiators and can be installed in different rooms or on separate floors of the same building. This is because all products can operate using the same low flow temperatures.

5.4 Mix 'n' Match Heating Solutions

With a full range of hydronic heat emitters, electric heat emitters and controls, MYSON is the UK's leading expert in the control and distribution of heat. MYSON is the only manufacturer who can truly offer an unbiased view on how best to heat buildings both now and in the future.

Our technical team are happy to provide expert advice on system design and help you make the best decisions on heating solutions, which may involve mix 'n' match solutions. For example, if you want to use a heat pump but it is not practical to install underfloor heating, iVECTORs make an excellent alternative heat emitter. Alternatively, the iVECTOR's compact size means that it can be used instead of radiators if, for aesthetic reasons, you want fewer or smaller units in a room.

6.1 Introduction

The intelligent, electronic control system provided as standard in every iVECTOR includes a wide range of easy to use heating and cooling operating options. Its two tier level of programming incorporates an **'easy' mode** for everyday operation and a **'full' mode** for more advanced functions. It also has the ability to link iVECTORs to a building management system.

Function	Description	Adjustment	Availability	
			Easy	Full
	Control Operation Setup The unit must be programmed for operation in heating only, cooling only or heating and cooling.	**Control Operation Setup** Scroll to the Fixed Fan mode, and then press on the (◀) key. Use (+) or (-) keys to choose from the following: **Nod (Mode) HOt** for heating. **Nod (Mode) COLd** for cooling. **Nod (Mode) AUtO** for heating and cooling. Press (OK) to confirm.	No	Yes
	Fixed Fan Setting F1, F2, F3 gives fan speed 1,2 or 3 respectively with no temperature control. A1, A2, A3 gives fan speed 1,2 or 3 respectively in heating only if the water temperature ≥32°C.	Use (+) or (-) to select and press (OK) to confirm. (Note the fan speed symbol will only appear when the fan is running).	Yes	Yes
	Comfort Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and set temperature. The fan operates when water ≥32°C in heating or ≤15°C cooling.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 21°C in Heating.	Yes	Yes
Auto	**Automatic Setting** The unit will run according to one of the 9 preset timed programmes, or one of the 4 user defined programmes.	Press (OK) to view the actual set temperature (Comfort or Set-back).	No	Yes
	Night Set-back Setting Provides room temperature control with automatic fan speed adjustment according to difference between actual and night set-back temperature.	Press (OK) to view the set temperature. Use (+) or (-) to adjust the required room temperature. Default setting is 19°C in Heating.	No	Yes
	Holiday Function Provides frost protection or overheat protection during periods of absence (holiday). The control will count down the time to "00" after which control is resumed in Auto setting. For frost protection the set temperature is 7°C. For overheat the set temperature is 30°C.	Select and is displayed. Use the (+) and (-) to adjust the duration. (In hours "H" if below 24H and then in days "d"). Use the (-) key to interrupt this period and adjust the duration on "no".	No	Yes
	Power On/Off Turns unit on/off.	Press (OK) to turn the power on or off.	Yes	Yes
	Set Clock Menu Displays time in 12h or 24h format.	Press (OK) Use the (+) and (-) keys to set the minutes. Press (OK) Use the (+) and (-) keys to set the hours. Press (OK) Use the (+) and (-) to set the days. Press (OK).	Yes	Yes
P	**Programme Menu** Provides choice from 9 pre-programmed and 4 user defined timed programmes.	See Installation Manual for all options.	No	Yes

6.2 Easy Mode

Every iVECTOR leaves the factory with its controls set to the simplest level (easy mode). This setting allows you to set the time, set the temperature via the comfort setting as well as selecting your required fan speed.

There are four operating functions on easy mode:

1. Fixed fan speed setting - select between three options for your desired fixed fan speed.
2. Comfort setting - the iVECTOR will run indefinitely in this setting with the fan speed automatically adjusting as required.
3. Clock and day setting - use this to set minutes, hours and day.
4. Power on/off setting.

You can move easily between these functions by using the arrow keys and alter settings by using the + and – keys.

Easy Mode Display

1. Heating indicator
2. Cooling indicator
3. Temperature symbol – when this is displayed the current room temperature is displayed
4. Fan speed symbol (fan blades will rotate when active)
5. Comfort setting
6. Power (on/off)
7. Clock setting
8. Room temperature
9. Time
10. Day of the week

Keys:

OK	Validation key (OK)
+	Plus key (up)
-	Minus key (down)
◄	Navigation left
►	Navigation right

6.3 Full Mode

The full mode operation has the same four functions as easy mode plus a further four others:

5. Auto setting - gives you a choice of nine programme options which are saved in memory for twelve hours in the event of power failure.
6. Setback setting - provides night time temperature control, maintaining night set-back selection.
7. Frost setting - provides frost protection or overheat protection during periods of absence.
8. Programme setting - provides choice of nine pre-programmed options and four user defined programmes.

Full Mode Display

The full control display can be accessed by pressing the (+) and (-) buttons for 5 seconds. This action can be repeated to revert back to 'Easy mode'.

1. Heating indicator
2. Cooling indicator
3. Temperature symbol – when this is displayed the current room temperature is displayed
4. Fan speed symbol (fan blades will rotate when active)
5. Comfort setting
6. Power (on/off)
7. Clock setting
8. Room temperature
9. Time
10. Day of the week
11. Auto setting (to follow set programme)
12. Night set-back setting
13. Holiday setting
14. Programme menu
15. Programme schedule

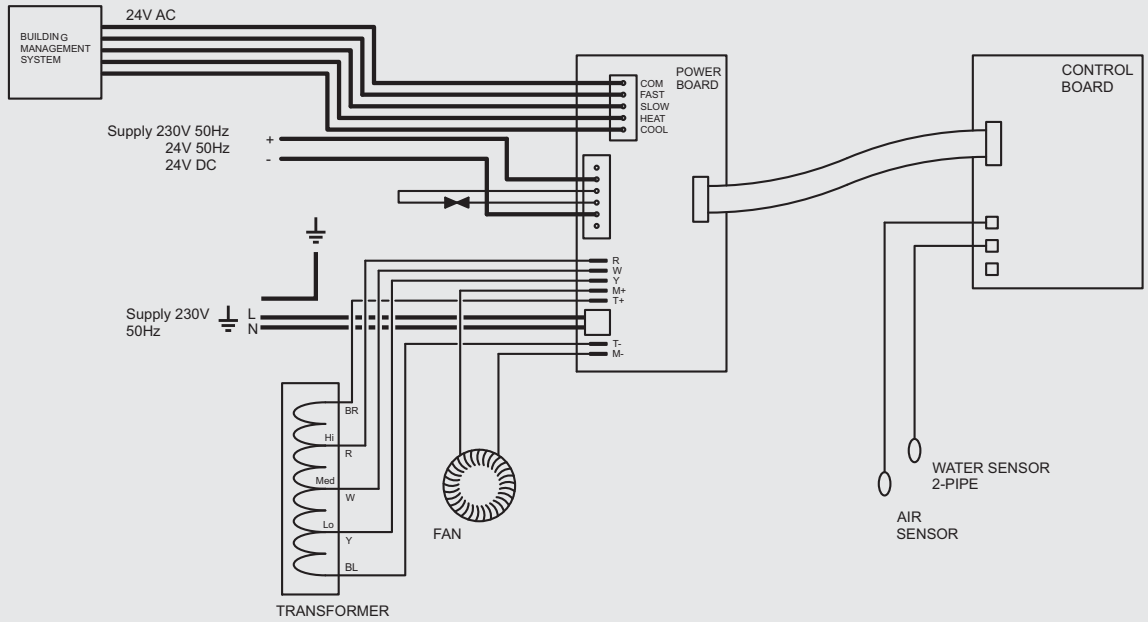
Keys:

OK Validation key (OK)
\+ Plus key (up)
\- Minus key (down)
◄ Navigation left
► Navigation right

6.4 Building Management System (BMS)

Each iVECTOR has a built-in BMS connection, this must be wired to the main BMS controller to allow the BMS to take control of the iVECTOR.

2-pipe 1 valve + BMS



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